Discussion on "Gusset Design and Analysis of the RIA Two Spoke Cavity" by Tom Schultheiss

The first question during the discussion was about the expected pressure change during cooldown. Shepard answered that people typically see around 1 atm, Kelley remarked that CEBAF as lowest value saw 1.8 atm. Shepard clarified that they are not using the CEBAF scheme, but, like in ATLAS use local heat exchangers. He expects around 21 psi pressure to be compensated.

On the question, if they worry about Q-disease and if they can cool down fast enough, if they use the heat exchangers he answered that this is not the limitation of their system. Schultheiss added that one has to keep in mind that for the cold system all allowables increase significantly so that no global yield problems are expected.

Shepard admitted that the localized stress in the gusset might have to be re-investigated if the system were to be produced today. He expects that the stresses can be further reduced, if needed.

Asked about the integrated design with helium vessel, Shepard explained that for some of their spokes, even with heavily reinforced end dishes, they saw significant detuning due to the external pressure. This was their motivation to look into the integrated, self-compensation design of cavity and vessel. With this setup they expect much less stiffening and much less susceptibility to microphonics effects. Compared to the significance of this improvement the localized stress in the gusset is seen as a secondary problem.

Zaplatin asked about the significance of the temperature in the tuning change simulations. Schultheiss and Shepard pointed out that the effect is purely local and df/f is changed insignificantly if you look at a cold or a warm start geometry.